**IN THE CLAIMS:**

**Please amend** claims 4, 5, 7, and 9 as shown in the complete list of claims that is presented below.

1. (previously presented) A method for transmission rate adaptation used in a wireless network, a current transmission rate being selected from a set of predetermined transmission rates, each of the predetermined transmission rates, R, being associated with a PER (packet error rate) range, which includes a predetermined threshold pair of a high PER (packet error rate) threshold, denoted as $Q_H(R)$, and a low PER threshold, denoted as $Q_L(R)$, the method comprising:

determining a first number N1 and a second number N2 according to the $Q_H(r_n)$ and the $Q_L(r_n)$, respectively, wherein N1 and N2 are positive integers, wherein $r_n$ denotes the current transmission rate, and wherein the subscript n denotes an adaptation iteration index;

transmitting a first plurality of packets, wherein the number of the first plurality of packets is N1;

receiving a first plurality of acknowledge packets, each one in the first plurality of acknowledge packets responding to one of the first plurality of packets, wherein the number of the first plurality of acknowledge packets is A1, wherein A1 is a positive integer and A1<=N1, and wherein a first estimated PER, denoted as $P1(r_n)$, corresponding to the current transmission rate is $P1(r_n) = (N1-A1)/N1$;

reducing the transmission rate if the $P1(r_n)$ is larger than the $Q_H(r_n)$;

transmitting a second plurality of packets, wherein the number of the second plurality of packets is (N2-N1);

receiving a second plurality of acknowledge packets, each one in the second plurality of acknowledge packets responding to one in the second plurality of packets, wherein the number of the second plurality of acknowledge packets is A2 and A2<=(N2-N1), and wherein

a second estimated PER, $P2(r_n)$, corresponding to the current transmission is $P2(r_n)=(N2-A1-A2)/N2$;

reducing the transmission rate if the $P2(r_n)$ is larger than the $Q_H(r_n)$;

increasing the transmission rate if the $P2(r_n)$ is smaller than the $Q_L(r_n)$; and

keeping the same transmission rate if the $P2(r_n)$ falls between the $Q_H(r_n)$ and the $Q_L(r_n)$;

wherein the numbers N1 and N2 are large enough such that the $P1(r_n)$ and the $P2(r_n)$ are substantially reliable.

2. (previously presented) The method according to claim 1, further comprising:

checking if M consecutive packets of the first or second plurality of packets have failed to be acknowledged, and if yes, decreasing the transmission rate, wherein M is an integer.

3. (original) The method according to claim 1, wherein the transmission rate remains unchanged if the transmission rate at the step of reducing the transmission rate is the lowest one, or the transmission rate at the step of increasing transmission rate is the highest one.

4. (currently amended) A method for transmission rate adaptation used in a wireless network, a current transmission rate being selected from a set of predetermined transmission rates, each of the predetermined transmission rates, R, being associated with a PER (packet error rate) range, which includes a predetermined threshold pair of a high PER (packet error rate) threshold, denoted as $Q_H(R)$, and a low PER threshold, denoted as $Q_L(R)$, the method comprising:

(1) transmitting a first plurality of packets, wherein a first number N1 of the first plurality of packets is determined according to the $Q_H(r_n)$;

[[(1)]] (2) calculating a first estimated PER, denoted as $P1(r_n)$, over the first plurality of transmitted packets, wherein $r_n$ denotes the current transmission rate, and the subscript n denotes an adaptation iteration index ;

[[(2)]] (3) checking whether the $P1(r_n)$ is larger than the $Q_H(r_n)$, and if yes, processing step [[(3),]] (4), else processing step [[(4);]] (5);

[[(3)]] (4) reducing the transmission rate and ending the method;

(5) transmitting a second plurality of packets, wherein the number of the second plurality of packets is equal to a second number N2 minus the first number N1, and the second number N2 is determined according to the $Q_L(r_n)$;

[[(4)]] (6) calculating a second estimated PER, denoted as $P2(r_n)$ over the second plurality of transmitted packets;

[[(5)]] (7) checking whether the $P2(r_n)$ being smaller than the $Q_L(r_n)$, and if yes, processing step [[(6),]] (8), else processing step [[(7);]] (9);

[[(6)]] (8) increasing the transmission rate and ending the method; ~~and~~

[[(7)]] (9) checking whether the $P2(r_n)$ ~~being~~ is larger than the $Q_H(r_n)$, and if yes, processing step [[(8),]] (10), else ending the method; and

~~(8)~~ (10) reducing the transmission rate.

5. (currently amended) The method according to claim 4, wherein step (1) comprises:

~~determining a first number according to the $Q_H(r_n)$;~~

~~transmitting a first plurality of packets, wherein the number of the first plurality of packets equals to the first number;~~

receiving a first plurality of acknowledge packets, each one in the first plurality of acknowledge packets responding to one of the first plurality of packets; and

calculating the first estimated PER $P1(r_n)$ according to the number of the first acknowledge packets and the number of the first plurality of packets;

wherein the first number is large enough such that the $P1(r_n)$ is substantially reliable.

6. (previously presented) The method according to claim 5, wherein the transmission rate is reduced if there are M consecutive ones of the first plurality of packets that have failed to be acknowledged, wherein M is an integer.

7. (currently amended) The method according to claim 5, wherein step (4) comprises:

~~determining a second number according to the $Q_L(r_n)$;~~

~~transmitting a second plurality of packets, wherein the sum of the number of the second plurality of packets and the number of the first plurality of packets equals to the second number;~~

receiving a second plurality of acknowledge packets, each one in the second plurality of acknowledge packets responding to one of the second plurality of packets; and

calculating the second estimated PER $P2(r_n)$, according to the number of the second plurality of acknowledge packets, the number of the first plurality of acknowledge packets and the second number;

wherein the second number is large enough such that the $P2(r_n)$ is substantially reliable.

8. (previously presented) The method according to claim 7, wherein the transmission rate is reduced if there are M consecutive ones of the second plurality of packets that have failed to be acknowledged, wherein M is an integer.

9. (currently amended) The method according to claim 4, wherein step (4) comprises:

~~transmitting a second plurality of packets, wherein the number of the second plurality of packets is determined according to the $Q_L(r_n)$;~~

receiving a second plurality of acknowledge packets, each one in the second plurality of acknowledge packets responding to one of the second plurality of packets; and

calculating the second estimated PER $P2(r_n)$ according to the number of the second plurality of acknowledge packets and the second number of the second plurality of packets;

wherein the second number of the second plurality of packets is large enough such that the second estimated PER is substantially reliable.

10. (previously presented) The method according to claim 9, wherein the transmission rate is reduced if there are M consecutive ones of the second plurality of packets that have failed to be acknowledged, wherein M is an integer.

11. (original) The method according to claim 4, wherein the transmission rate remains unchanged if the transmission rate at the step of reducing the transmission rate is the lowest one, or the transmission rate at the step of increasing transmission rate is the highest one.

12. (previously presented) The method according to claim 4, further comprising a step of adapting the PER range, which comprises:

recording an adapting direction parameter $D_n$, being one of a first direction, a second direction, and a third value, and the adapting direction parameter representing that the transmission rate is adapted to a higher one, a lower one, and the same one respectively;

computing an estimated throughput $\rho(r_n)$ associated with the transmission rate $r_n$;

determining whether the current estimated throughput $\rho(r_n)$ is smaller than the previous estimated throughput $\rho(r_{n-1})$ and a previous adapting direction parameter $D_{n-1}$ is of the first direction, and if yes, performing a first range adaptation for adapting the low PER threshold $Q_L(r_n)$ associated with the current transmission rate $r_n$ and the high PER threshold $Q_H(r_{n-1})$ associated with the previous transmission rate $r_{n-1}$, and increasing the transmission rate; and

determining whether the current estimated throughput $\rho(r_n)$ is smaller than the previous estimated throughput $\rho(r_{n-1})$ and the previous adapting direction parameter $D_{n-1}$ is of the second direction, and if yes, performing a second range adaptation for adapting the high PER threshold $Q_H(r_n)$ associated with the current transmission rate $r_n$ and the low PER threshold $Q_L(r_{n-1})$ associated with the previous transmission rate $r_{n-1}$, and decreasing the transmission rate.

13. (original) The method according to claim 12, wherein the first range adaptation comprises:

increasing the $Q_L(r_n)$ and the $Q_H(r_{n-1})$ by a first predetermined value and a second predetermined value, respectively.

14. (original) The method according to claim 12, wherein the second range adaptation comprises:

decreasing the $Q_H(r_n)$ and the $Q_L(r_{n-1})$ by a third predetermined value and a fourth predetermined value, respectively.

15. (previously presented) The method according to claim 12, wherein the calculation of the estimated throughput $\rho(r_n)$ associated with the transmission rate $r_n$ at adaptation iteration n comprises:

computing a final estimated PER $P(r_n)$ associated with the transmission rate $r_n$, wherein the $P(r_n)$ equals to the $P2(r_n)$ if the $P2(r_n)$ is valid, and otherwise, the $P(r_n)$ equals to the $P1(r_n)$;

computing the estimated throughput $\rho(r_n)$ based on the $P(r_n)$ and a predetermined maximal throughput $\rho_0(r_n)$ associated to the transmission rate $r_n$ at adaptation iteration n.

16. (original) The method according to claim 15, wherein $\rho(r_n)= \rho_0(r_n)*(1-P(r_n))$.

17. (previously presented) The method according claim 12 further comprising a step for avoiding a ping-pong event, which comprises:

calculating a ping-pong parameter based on the adapting direction parameters $D_n$ and $D_{n-1}$, wherein the ping-pong parameter is increased when $D_n$ and $D_{n-1}$ represent the opposite direction to each other, and otherwise, the ping-pong parameter is reset; and

determining whether the ping-pong parameter is larger than a ping-pong threshold, and if yes, processing the step of adapting PER range.

18. (previously presented) The method according to claim 17, wherein the step for avoiding a ping-pong event is performed before the step of increasing or decreasing the transmission rate.